# Patent Claims

1. A method of representing echo signals obtained using an ultrasonic inspection apparatus for non-destructive inspection of a test body (18), said ultrasonic inspection apparatus comprising:
   - a probe, more specifically an angle beam probe (10),
   - a transmitter that is connected to the probe and generates transmitter pulses it delivers to the probe,
   - a receiver that is connected to the probe and receives echo signals and
   - a monitor (12) with a display (14) that is connected to the receiver for representing in a cross-sectional image (38) the echo signals received in such a manner that at least one front surface (22) and one rear wall (24) of the probe (18) are visible, said method involving the following method steps:
   - placing the angle beam probe (10) onto the front surface,
   - insonifying ultrasonic pulses into the test body (18) at a certain angle ($\alpha$),
   - finding and growing a flaw (36) from a first disposition of the probe, the extension of the flaw (36) with respect to the first disposition of the probe being determined using a comparative method and being represented true to scale on the display (14) as the first flaw signal (40) in a first measurement image,
   - storing the first measurement image captured,
   - finding and growing the same flaw (36) from a second disposition of the probe, the extension of the flaw (36) with respect to the second disposition of the probe being determined using a comparative method and being represented true to scale on the display (14) as the second flaw signal (42) in a second measurement image,
   - storing the second measurement image captured,
   - concurrently representing the superimposed first and second measurement images in an evaluation image (44) in such a manner that the first and the second flaw signals (40, 42) are visible.

2. The method as set forth in claim 1, characterized in that a sound path (26), which is divided into legs (28, 30, 32), also is represented in the measurement images and in the evaluation image (44).

3. The method as set forth in claim 1 or claim 2, characterized in that the various flaw signals (40, 42) are represented in different ways.

4. The method as set forth in claim 2 or claim 3, characterized in that the various legs (28, 30, 32) are represented each in a different way.

5. The method as set forth in claim 3 or claim 4, characterized in that the flaw signals (40, 42) are each represented according to the sound path (26) and/or the leg (28, 30, 32) from which they originate.

6. The method as set forth in any of the claims 1 through 5, characterized in that, when inspecting a weld seam (20), said weld seam is also represented in the cross-sectional images (38), the measurement images and the evaluation image (44).

7. The method as set forth in any of the claims 1 through 5, characterized in that the received echo signals obtained are additionally represented in a top view image (46) in such a manner that the extension of the flaw (36) in the longitudinal plane of the test body (18), that is to say in the plane oriented substantially transverse to the cross-sectional image (38), is displayed on the display (14).

8. The method as set forth in any of the claims 1 through 7, characterized in that the test body is solidly connected to a means (38) that serves to determine the respective position of the angle beam probe (10) on the surface of the test body (18).

9. The method as set forth in any of the claims 1 through 8, characterized in that, taking into consideration limit values in terms of amplitude and/or spatial limits, only that region of the test body (18) to be tested and/or

such flaw signals (40, 42) is/are represented on the display (14) that is/are of interest for inspection.

10. The method as set forth in any of the claims 1 through 7, characterized in that the representation of the flaw signals (40, 42) is encoded, more specifically colour-encoded, depending on the amplitude determined.

11. The method as set forth in any of the claims 1 through 10, characterized in that the flaw (36) is located between the first disposition and the second disposition of the angle beam probe (10).

12. The method as set forth in any of the claims 1 through 11, characterized in that the first disposition and the second disposition of the angle beam probe (10) are located on the same side of the flaw (36) but are spaced a different distance from said flaw (36).